USSR UDC: 621.327.4.032.212

IGNAT'YEV, V. G., ISAYEV, L. A., SYSUN, V. V.

"A Gas-Discharge Light Source With End-Face Emission Output"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332523, Division H, filed 4 Aug 70, published 14 Mar 72, p 212

Translation: This Author's Certificate introduces: 1. A gas-discharge light source with end-face emission output. The lamp contains a tubular envelope filled with working gas, and electrode assemblies mounted on its opposing ends. One of the electrode assemblies is made in the form of a hollow cylindrical part with an optically transparent window in one end face for emission output. As a distinguishing feature of the patent, in order to bring the output emission as close as possible to that of an absolutely black body, to increase the efficiency of conversion of electrical energy to directional emission, to reduce the overall dimensions, and to form a platform with constant energy brightness, the opposite electrode is made in the form of a flat mirror surrounded at the periphery by a projecting ring which acts as the working surface of the electrode. 2. A

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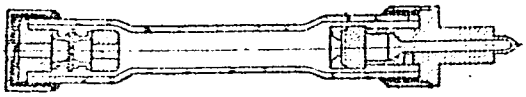
IGNAT'YEV, V. G. et al., USSR Author's Certificate No 332523

modification of this light source distinguished by the fact that the hollow electrode assembly is made up of two parts, the working part being separated by a slit diaphragm from the carrier part and the window for emission output.



USSR

UDC 621.791.011:669.715

MAKAROV, V. P., KOZLOV, I. T., IGNAT'YEV, V. G., NAZARENKO, A. N.

"Mechanical Properties of the Base Metal and Welded Joints of Alloys 01915 and AMg6 at Below-Freezing Temperatures"

Avtomaticheskaya Svarka, No 12, 1971, pp 62-63.

ABSTRACT: The new aluminum-zinc-magnesium alloy type 01915 has better characteristics for use in railroad car building than the traditional aluminum alloy AMg6. The new alloy is stronger, has a higher yield point and better pressing properties. Pressed shapes of 01915 alloy are approximately 10% less expensive than shapes of AMg6 alloy. Studies of the mechanical properties of base metal and welded joints of 01915 alloy were performed at +20, -20, -40 and -60°C. A table of the test results is presented. The results showed that the mechanical properties of the base metal and welded joints of both alloys remain practically unchanged in the temperature interval tested. The mechanical properties of welded joints of both alloys are lower than those of the base metal. The yield point of joints of 01915 alloy is 20 to 24% higher than that of joints of AMg6 alloy. The relative elongation is

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MAKAROV, V. P, et al., Avtomaticheskaya Svarka, No 12, 1971, pp 62-63

greater for AMg6 joints. The impact toughness of joint metal made by semi-automatic welding is lower than that of the base metal, while the impact toughness of joint metal produced by manual welding is higher than that of the base metal.

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1/2 040 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ABSORPTION AND RADIATION CAPACITY OF A XENON PULSED DISCHARGE PLASMA -U-

AUTHOR-(03)-GAVRILOVA, L.I., DOINIKOV, A.S., IGNATYEV, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(3), 537-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DISCHARGE PLASMA, XENON, GAS PRESSURE, CURRENT DENSITY, LIGHT ABSORPTION, ABSORPTION COEFFICIENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1492 STEP NO--UR/0368/70/012/003/0537/0539

CIRC ACCESSION NO--AP0118479

UNCLASSIFIED

2/2 040 UNCLASSIFIED

CIRC ACCESSION NO--AP0118479 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OPTICAL PROPERTIES (TEMP. AND ABSORPTION COEFF.) WERE STUDIED OF XE PULSED DISCHARGE PLASMA AS A FUNCTION OF BOTH C.D. AND PRESSURE (100-600 TORR). THE ABSORPTION COEFF. VARIES ALMOST LINEARILY WITH C.D., THE PROPORTIONALITY CONST. BEING SPLIT INTO 2 FACTORS DEPENDING ON WAVELENGTH AND PRESSURE, RESP. THE RELATION BETWEEN PLASMA ABS. TAMP. T AND C.D. J (A-CM PRIME2) IS GIVEN BY THE EMPIRICAL EQUATION T EQUALS 1.14 TIMES 10 PRIME3 J PRIME0.PRIME29. THE EXPTL. VALUES OF THE ABSORPTION COEFF. ARE APPROX. ONE THIRD COMPARED WITH THEORETICAL ONES, WHICH CAN BE ESPLAINED BY CHANGES IN CONCN. OF NEUTRAL PLASMA PARTICLES DURING DISCHARGE.

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USSR UDC 537.563:547.341

BOGOLYUBOV, G. M., PLOTNIKOV, V. F., IGNAT'YEV, V. M., and IONIN, B. I., Leningrad Technological Institute imeni Lensovet

"Organic Derivatives of the V-VII Group Elements. XV. Mass-Spectra of Unsaturated Phosphine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 517-520

Abstract: Mass spectra and appearance potentials of the basic ions of diethylpropylphosphine, diethyl-trans-propenylphosphine, diethy-cispropenylphosphine, diethylpropenylphosphine, and diethylallenylphosphine oxides are reported. Only few peaks with intensities higher than 10% appear in these spectra. The intensity of molecular and β-ions is small, the α- and π-ions predominating there. The intensity values M^+ in the mass spectra obtained agree with the localization of the positive charge on the molecular ion of phosphine oxides, specifically at the oxygen atom of the phosphoryl group. The relationship between the intensities of positive molecular ions and of the rear-ranged ones indicates intramolecular hydrogen bonding in trans-diethylpropenylphosphine oxide. Mass spectral conversions of phosphine oxides depend on participation of ionic mesomeric system including phosphoryl group.

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UDC: 51:621.391

USSR

IGNAT'YEV, V. N.

"Solution of Some Problems in CPM Model Research"

Tr. Irkutsk. un-ta. Ser. mat. (Works of Irkutsk University. Mathematics Series), 1970, 74, No 6, pp 205-214 (from RZh--Kibernetika, No 10, Oct 72, abstract No 10V595)

[No abstract]

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USSR

UDC: [621.391.82:621.396.721]:621.317.743

IGNAT'YEV, V. M.

"Statistic Estimate of Interference Created by Stochastic Radiators Located on a Sphere"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 92-97 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A166)

Translation: The author calculates the average power of the interference created by a large number of radio stations located on a spherical surface. Random distribution is assumed for the sources of radiation which have random powers and radiation patterns. The nature of the randomness is accounted for by a probabilistic measure given on a set of points of the sphere. The average power of the interference radiated from a unit of the surface is known. The averaged radiation pattern is the weighted sum of a circle and a sine (in the polar coordinate system). A. K.

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USSR

UDC 669.168.001

MCHEDLISHVILI, V. A., IGNAT'YEV, V. S., ZAGYU, T. N., and KHITRIK, S. I.

"Oxide Inclusions in Ferrotitanium and Ferroniobium"

Moscow, Stal', No 7, Jul 71, pp 614-615

Abstract: The authors studied the quantity and composition of oxide inclusions in standard ferroalloys, viz. 30-percent ferrotitanium Ti1 and 60-percent ferroniobium Nb1 and NbnO, after isolating them by chlorination by converting the metallic components of the alloys into volatile chlorides during heating under the action of gaseous high-purity chlorine with subsequent vacuum sublimation of the chlorides. It was found that the oxide inclusions in ferrotitanium and ferroniobium are mainly of endogenous origin. Those in ferrotitanium are represented by corundum (α-Al_2O_3), β-alumina with an admixture of TiO_2 and Cr_2O_3, mullite, helenite, and silicates of the sphene and fayalite type. Ferroniobium contains inclusions of corundum, complex aluminosilicates and oxides of the columbite and mossite type. The oxide inclusion content of ferrotita-

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MCHEDLISHVILI, V. A., et al., Stal', No 7, Jul 71, pp 614-615

nium is 0.2-0.3 percent, low-silicon ferroniobium 0.04-0.14 percent and high-silicon ferroniobium 0.1-0.3 percent. The inclusions are distributed much more uniformly in ferroniobium than in ferrotitanium. The principal component of inclusions in both ferroalloys is alumina Al_2O_3. There are also significant quantities of SiO_2, FeO and TiO_2. Ferroniobium also contains niobium and tantalum oxides; and ferrotitanium -- insignificant quantities of manganese, calcium and chromium oxides. The calculated oxygen content of the inclusions for both alloys practically coincides with that found by the vacuum melting method (0.08-0.14 percent for ferrotitanium, 0.03-0.06 percent for low-silicon ferroniobium and 0.08-0.12 percent for high-silicon ferroniobium).

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CSO: 1842-W

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USSR

UDC: 621.396.6-181.5

KUROV, G. A., IGNAT'YEV, V. V.

"Investigation of Germanium Single Crystals Grown From a Drop of Melt on a Dissimilar Substrate"

Sb. nauchn. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collected Scientific Works on Problems of Microelectronics. Moscow Institute of Electronic Technology), 1970, vyp. 5, pp 64-75 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V184)

Translation: In connection with a study of methods of creating active elements of microcircuits, an investigation is made of the singularities of crystallization of a drop of germanium melt on dissimilar substrates (ruby, sapphire). The range of substrate cooling rates is established which gives fairly perfect germanium single crystals 1-3 mm in size. The electrophysical properties of the resultant crystals are studied. Resumé.

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UDC 911.3.61.001.8

IGNAT'YEV, Ye. I.

"Medical Geography"

V sb. Geogr. o-vo za 125 let (The Geographical Society for 125 years -- collection of works), Leningrad, "Nauka," 1970, pp 242-248 (from RZh-36. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.1)

Translation: Medical geography is one of the more recent geographical sciences. It came into being only a few years ago, chiefly through the auspices of the Geographical Society of the USSR. Medical geography emerged from the union of medicine and geography. These two major scientific systems began to draw closer in the beginning of the 19th century as a result of joint decisions affecting public health protection and consolidation, and identification of causes, conditions, and territorial distribution of disease. Developmental stages in medical geography are described. The closer relationship of the two sciences gives rise not only to medical geography, but to a geographic orientation in medicine and public health (where geographic and cartographic techniques are now widely used). While the objectives of medicine and public health are related to

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IGNAT'YEV, Ye. I., V sb. Geogr. o-vo za 125 let (The Geographical Society for 125 years -- collection of works), Leningrad, "Nauka," 1970, pp 242-248 (from RZh-36. Meditsinskaya geografiya, No 1, Jan 71, Abstract No 1.36.1)

the study of health per se, the objective for medical geography is the landscape milieu, the geographical context for human society. Medical geography is now achieving tangible results, most clearly illustrated in its handling of theoretical problems. These include problems in medico-geographic evaluation of natural and industrial territorial complexes, medico-geographic district division, medico-geographic prognosis and medico-geographic cartography. Medico-geographic studies of the country have had significant success. Two goals for the current stage of development are 1) the study, in conjunction with other sciences, of the geographical cycle of the landscape milieu for human society, so that optimal life and work conditions can be created while safeguarding public health; 2) bringing the geographical approach and cartographic technique into medical and publich health practice and providing these disciplines with pertinent information on the factors within the natural and industrial territorial complex that can affect public health.
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1/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SERUM PROPHYLAXIS OF MEASLES -U-

AUTHOR-(04)-SHATROV, I.I., MASTYUKOVA, YU.N., IGNATYEVA, G.V., IVANOVA, L.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII EPIDEIOLOGII I IMMUNOBIOLOGII, 1970, NR 3, PP 120-125

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROPHYLAXIS, MEASLES, BLOOD SERUM, GAMMA GLOBULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1477 STEP NO--UR/0016/70/000/003/0120/0125

CIRC ACCESSION NO--AP0109537

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0109537
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS OF THE RESULTS OF STUDYING THE CLINICO EPIDEMIOLOGICAL EFFICACY OF VARIOUS GAMMA GLOBULIN DOSES IN THE FOCI WITH VARIOUS EPIDEMIOLOGICAL CONDITIONS DEMONSTRATED THAT THE EFFICACY OF SERUM PROPHYLAXIS OF MEASLES DEPENDED ON A NUMBER OF FACTORS; THE AGE OF THE CHILDREN VACCINATED AND THE EPIDEMIOLOGICAL SITUATICN IN THE FOCUS (THE DURATION OF EXPOSURE TO THE SOURCE OF INFECTION AND THE SEVERITY OF MEASLES IN THE PATIENT) THE DOSE, THE PERIOD OF ADMINISTRATION OF GAMMA-GLOBULIN AFTER THE CONTACT, AND THE CONTENT OF SPECIFIC ANTIBODIES IN IT. THES FACTORS PRODUCED A SIGNIFICANT EFFECT NOR ONLY ON THE EXTENT OF MODIFICATIONOF THE INFECTIOUS PROCESS, BUT ALSO ON THE FORMATION OF SPECIFIC ANTIBODIES IN THE PERSONS VACCINATED. THE DOSE OF GAMMA-GLOBULIN WHICH PRODUCES IN 1 TO 4 YEAR OLD CHILDREN A MITIGATED CORSE OF MEASLES IF THEY CONTRACT THE DISEASE AND AN INTENSIVE DEVELOPMENT OF IMMUNOLOGICAL PROCESSES, IS 1.5 ML.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110010-3"

1/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--INTERACTION OF H SUB2 O, D SUB2 O, AND HDO WITH THE SURFACE OF AN ALUMINOSILICATE CATALYST -U-

AUTHOR--IGNATYEVA, L.A., CHUKIN, G.D., YUKHNEVICH, G.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 318-22

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--WATER, DEUTERIUM OXIDE, ADSORPTION, ALUMINUM SILICATE, IR SPECTROSCOPY, CATALYST, HYDROGEN BONDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0238 STEP NO--UR/0368/70/012/002/0318/0322

CIRC ACCESSION NO--AP0106894

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MECHANISM OF ADSORPTION OF H SUB2 O, D SUB2 O, AND HDO ON ALUMINOSILICATE CATALYST (12.7PERCENT GAMMA,AL SUB2 O SUB3 WITH SP. SURFACE 450 M PRIME2-G, DEHYDRATED UNDER VACUUM AT 550DEGREES FOR 6 HR) WAS EXAMD. BY MEANS OF IR SPECTROSCOPY. THE SPECTRA SHOWED THAT AT SMALL CONCNS. WATER WAS ADSORBED IN THE FORM OF A MOL., I.E. COORDINATION BONDS BETWEEN O AND SI WERE FORMED. THIS WATER WAS THERMOSTABLE, REMAINING ON THE SURFACE AT 400-500DEGREES. FURTHER MOLS. WERE ADSORBED VIA H BONDS AND WERE DESORBED AT SMALLER THAN OR EQUAL TO 200DEGREES.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110010-3"

1/2 016 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--THERMAL BEHAVIOR OF EUROPIUM OXIDES -U-

AUTHOR--IGNATYEVA, N.I., BAMBUROV, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER.; 6: 154-5(JAN 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMAL EFFECT, OXIDATION, EUROPIUM COMPOUND, OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1981/0855 STEP NO--UR/0363/70/006/000/0154/0155

CIRC ACCESSION NO--AP0050849

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0050849

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMAL STUDIES WERE MADE OF THE LOWER EUROPIUM OXIDES IN THE AIR. X RAY ANALYSES SHOWED THAT OXIDATION PRODUCTS OF EUO AT 310DEGREESC ARE EUO AND EU SUB3 O SUB4; AT 310 TO 420DEGREESC EUO, EU SUB3 O SUB4, AND B-EU SUB2 O SUB3; AND AT 420 TO 710DEGREESC EU SUB3 O SUB4 AND B-EU SUB2 O SUB3. SINTERING OF THE LOWER EUROPIUM OXIDES AT 710DEGREESC RESULTED IN A SINGLE PHASE MONOCLYNIC SPECIMEN OF EU SUB2 O SUB3 FOLLOWING THE CONVERSION OF EUO YIELDS EU SUB3 O SUB4 YIELDS B EU SUB2 O SUB3.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--IMPORTANT FACTOR IN REDUCING POLLUTION OF NATURAL WATERS, BY SPENT PULPING LIQUORS -U-

AUTHOR-(02)-IGNATYEVA, O.I., SAPOTNITSKIY, S.A.

COUNTRY OF INFO--USSR

SOURCE--BUM. PROM. 1970, (5), 9-11

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PAPER INDUSTRY, WATER POLLUTION, SULFITE, YEAST, CONTINUOUS CULTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0990 STEP NO--UR/0329/70/000/005/0009/0011

CIRC ACCESSION NO--AP0134704

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 020

CIRC ACCESSION NO--AP0134704

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPENT LIQUOR FROM HOT ALKALI REFINING OF PULP IS NEXT TO SPENT SULFITE LIQUOR (I) AS A WATER POLLUTANT, ITS BOD SUB5 BEING ABOUT 4 TONS-100 TONS PULP. THE SPENT REFINING LIQUOR CAN BE USED FOR THE PREPN. OF SULFITE COOKING LIQUOR. ANOTHER MEANS FOR ITS UTILIZATION AND REDN. OF WATER POLLUTION IS ITS JOINT BIOL. PROCESSING WITH THE I, IN WHICH THE ORG. ACIDS IT CONTAINS ARE UTILIZED BY YEAST, WHILE THE ALKALI NEUTRALIZES THE I. THE BEST CONDITIONS FOR SUCH JOINT PROCESSING WERE STUDIED ON MODEL SOLNS. OF BOTH SPENT LIQUORS WHICH, AFTER MIXING AND ADDN. OF SUITABLE NUTRIENT SALTS, WERE USED FOR CULTIVATION OF TORULOPSIS UTILIS YEAST. THE YIELD OF YEAST CELLS COMPARED WITH CONTROL MEDIUM ("MODEL" I NEUTRALIZED WITH NAOH TO THE SAME PH OF 5.6), WAS SIMILAR TO 40PERCENT HIGHER, AND AT LEAST 45PERCENT OF THE ACID IN THE MEDIUM WAS UTIILZED. THESE RESULTS WERE CONFIRMED IN LAB. CULTIVATION OF YEAST IN A MEDIUM CONSISTING OF I FROM LAB. NA BASE SULFITE COOKS OF SPRUCEWOOD, SPEN LIQUOR FROM LAB. HOT ALKALI REFINING OF PULP, AND WATER IN A 1:1:1 RATIO. THE PH OF THE MEDIUM WAS 5.4-5.6. THE VOLATILE ACIDS (MAINLY HOAC) OPRESENT IN THE MEDIUM WERE UTILIZED BY YEAST TO ABOUT THE SAME EXTENT AS THE NONVOLATILE ORG. ACIDS, AND THE PROTEIN AND ASH CONTENT OF THE CELLS WAS THE SAME AS IN CELLS FROM THE CONTROL MEDIUM. FACILITY: LENINGRAD. ELSOTEKH. AKAD. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 617.7:611-018]:541.18.047.6-092.9

ZHOKHOV, V. P., SYNGAYEVSKAYA, V. A., IGNAT'YEVA, O. S., and SINENKO, G. F., Doctors, Military Medical Academy imeni S. M. Kirov

"Biochemical Shifts in Eye Tissues Exposed to Laser Radiation"

Odessa, Oftal'mologicheskiy Zhurnal, Vol 26, No 4, 1971, pp 273-277

Abstract: A study was made of biochemical shifts in the tissues of the eye (cornea, anterior chamber, lens, and retina) following irradiation with a pulsed ruby laser. Tests were made on 90 rabbits, while 31 control animals received no radiation. A parallel beam was applied on the cornea with energy of 0.5 joule per square centimeter. With energy densities of 0.6, 0.3, and 0.1 joule per square centimeter on the cornea, an additional optical attachment was placed before the irradiated eye which produced an increased "spot" on the retina (d = 4-5 millimeter). After irradiation, ophthalmoscopy was done on several animals from each series, with the foci measured and fundi photographed. The concentration of sodium and potassium was markedly changed in all eye segments; the level of ascorbic acid shifted markedly in the lens and less so in other segments. Reliable shifts were observed in the SH group content in the lens and retina, and the cholinesterase activity increased

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USSR

ZHOKHOV, V. P., et al., Oftal'mologicheskiy Zhurnal, Vol 26, No 4, 1971, pp 273-277

with energy density of 0.6 moule per square centimeter x 3 on the retina. Test results demonstrated that shifts from the effect of the laser beam may be possible not only in the focus of radiation damage, but in adjacent sectors.

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UDC 577.4

USSR

IGNAT'YEVA, T. T., SMIRNITSKAYA, V. N., TIKHONOV, V. I.

"Utilization of the Standard Simplex Method Program for Optimizing the Distribution of the Quarterly Production Program by the Uniformity Criterion"

Tr. Leningr. inzh.-ekon. in-ta (Works of Leningrad Economic Engineering Institute), 1972, vyp. 91, pp 20-27 (from RZh-Kibernetika, No 7, July 72, Abstract No 7V544)

No abstract

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USSR

Analysis and Testing

UDC 621.771:539.4

USSR

VISHNYAKOV, YA. D., VLADIMIROV, S. A., and IGNAT'YEVA, YE. G., Moscow

"Change in the Dislocation Structure of Nickel and Its Alloy with 20% Cobalt During High-Reduction Rolling"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 93-97

Abstract: Samples of nickel and nickel with 20% Co, deformed by rolling at room temperature with degrees of reduction from 50 to 90%, were investigated by x-ray diffraction analysis. Calculations of the fine structure parameters were made using a Nairi computer with the calculation error amounting to 5% for the magnitudes of relative mean-square microdeformations $\langle \varepsilon^2 \rangle$. It was found that, in the course of cold rolling samples of pure nickel and the Ni-Co alloy, a decrease occurs in the internal stresses for 6-65 and 75-80% deformations which leads to an "anomalous" change in the magnitudes of H_{100} (microhardness), $\langle \varepsilon^2 \rangle$ and $\bar{t}$ (average cell size). The observed process is a consequence of dislocation redistribution during plastic deformation leading to growth of the average cell size. The formation of stretched configurations is apparently the result of

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USSR

VISHNYAKOV, YA. D., et al., Fizika i Khimiya Obrabotki Materialov, No 4, Jul-aug 73, pp 93-97

the union of several equiaxial cells in directions $\langle 100 \rangle$, $\langle 110 \rangle$ and $\langle 111 \rangle$. The change in stacking fault energy from 250 erg/cm^2 for nickel down to 160 erg/cm^2 for the Ni-20% Co alloy did not have any substantial effect on the external characteristics of the process of internal stress diminution. Two figures, five bibliographic references.

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1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--RELATION BETWEEN PHOTOVOLTAIC PROPERTIES AND THE STRUCTURE OF EPITAXIAL ZINC TELLURIDE FILMS -U-

AUTHOR-(02)-IGNATYUK, V.A., NOVIK, F.T.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 815

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--CRYSTAL STRUCTURE, THIN FILM SEMICONDUCTOR, ZINC COMPOUND, TELLURIDE, EPITAXIAL GROWTH, CRYSTAL ORIENTATION, GAS ABSORPTION, OXYGEN, PHOTOELECTROMOTIVE FORCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0886 STEP NO--UR/0449/70/004/004/0815/0815

CIRC ACCESSION NO--AP0131473

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0131473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF ELECTRON MICROSCOPE OBSERVATIONS AND OF PHOTOVOLTAIC MEASUREMENTS ON EPITAXIAL ZN TE FILMS ARE COMPARED. THE PHOTO VOLTAIC EFFECT IS EXPLAINED IN TERMS OF THE BARRIER THEORY. TWO GROUPS OF SAMPLES ARE DESCRIBED, DIFFERING IN THE SIGN OF THE PHOTOEMF. IN THE 1ST GROUP, A RELATION IS ESTABLISHED BETWEEN PHOTOEMF. AND LATTICE ORIENTATION WITH RESPECT TO THE SUBSTRATE. THE EMF. ALSO DEPENDS ON THE PRESENCE OF LAYERS OF FLAT STACKING FAULTS ALONG THE (111) AXIS. AN OPTIMUM ORIENTATION IS ATTAINED WHEN THE ZNTE LATTICE IS CONJUGATED WITH THE (100) PLANE OF THE SUBSTRATE. THE PRESENCE OF A HEXAGONAL PHASE IS NOT A NECESSARY CONDITION FOR THE GENERATION OF PHOTOEMF. IN THESE FILMS. THE PHOTOEMF. IN THE 2ND GROUP OF SAMPLES IS ASCRIBED TO SURFACE BARRIERS ASSOCD. WITH U ABSORPTION. THE EMF. IS MAX. WHEN THE ZNTE LATTICE IS CONJUGATED WITH THE (111) PLANE OF THE SUBSTRATE. FACILITY: LENINGRAD. GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: None

IGNATYUK, V.A. and NOVIK, F.T.

"Connection of Photovoltaic Characteristics and Zinc Telluride Epitaxial Film Structure"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, p 815

Abstract: The results of electronographic investigations and photovoltaic measurements made on epitaxial zinc telluride films are compared. Two groups of specimens, differing in polarity of their acquired photo-emf, are considered. For the first group, a connection is established between the photo-emf and the crystal orientation relative to the substrate. For the second, a connection is established between the photo-emf and the surface barriers.

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USSR

UDC 621.315.592

IGNATYUK, V. A. and NOVIK, F. T., Leningrad State University Imeni A. A. Zhdanov

"An Investigation of the Photovoltaic Properties of Epitaxial Films of Zinc Telluride"

Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

Abstract: This report covers experimental work only. The authors deposited these films by vacuum sublimation on a variety of substrates, including cleavage surfaces of NaCl, KCl, KBr, LiF, CaF_2 and mica monocrystals, as well as glass plates. The angle of incidence of the molecular beam was 35-40°. In some cases, a supplementary beam of pure zinc or pure tellurium was used in addition to the zinc telluride beam. The films deposited were 0.1-0.3 micrometers thick.

All the plates showed a resistance of 10^{8}-10^{9} ohms per square centimeter with the lower resistances found in films deposited at higher temperatures; the conductivity was always of the hole type. On films whose resistance was 10^{11} ohms per square centimeter or greater, photoemf was also observed. This was of two types, arbitrarily designated A and B. In the A type the end of the film farthest from the evaporator becomes negatively charged, while in the B type it is positively charged. This polarity is

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110010-3"

IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovenikov, Vol. 4, No. 3, March 1970, pp. 472-477

maintained even if the illumination comes through the substrate. The most important factor in determining whether an A or B type film is produced is the supplementary molecular beam: when it is zinc, B type films are formed, when it is tellurium, A type. When neither is used, the films are basically type A. The material of the substrate is also important; many B type films are produced on the rock salt substrate without a supplementary beam.

The samples were subjected to a number of tests, producing the following results:

1) The A types samples had the higher emf, approximately 8 times that of the B type.

2) Their electrical properties were essentially identical, except for the difference in generated emf.

3) Their passive current/voltage characteristics were essentially linear in a range from -2 to +2 kilovolts.

4) The maximum photoemf occurs along a projection of the molecular beam line; measured in other directions, it follows an essentially cosine distribution.

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IGNATYUK, V. A., et al, Fizika, i Tekhnika Poluprovonikov, Vol. 4, No. 5, March 1970, pp. 472-477

5) At low light intensities the photoemf is directly proportional to incident light intensity, at higher intensities it is exponentially proportionate (fractional exponent), and beginning at approximately $2 \cdot 10^{3}$ lux it becomes logarithmically proportionate (light at all wave lengths).

6) In the range below n^{15} photons per square centimeter times second of monochromatic light, where the photoemf was directly proportional, the photoconductivity was found to be proportional to the square root of intensity.

7) The maximum of photoemf as a function of wave length occurs approximately in the interval from 500-530 nanometers, with the maximum for B type samples occurring towards the short wave end of this interval.

8) The distribution of photoconductivity with light wave length was found to be approximately the same as that of photoemf (measured in non-photovoltaic samples).

9) The relationship of photoemf to the angle of light incidence is not solely proportional to illumination; if the plane of incidence passes through an angle of 90° with the projection of the molecular beam, then there is even a change in photoemf polarity, depending on the angle of illumination.

10) The use of plane polarized light produces somewhat different effects in A and B type samples.

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IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

The authors believe that this last phenomenon indicates that the A type photoemf is due to photovoltaic elements located throughout the film, while the B type emf is due to photovoltaic elements located near the surface. This would make the A type photoemf more sensitive to changes in the polarity of light, which must pass through the anisotropic material to reach the photovoltaic elements. This theory was further tested by surface treatment of the samples, in which the following factors were found:

1) Exposure to oxygen reduces photoemf.

2) Exposure to humidity increases photoemf.

3) Exposure to low heat (up to 370°K) leads to some increase in photoemf, but at higher temperatures a reduction in photoemf results.

4) Type B photoemf disappears more rapidly with heat.

5) The complete extinguishing of B type photoemf frequently leaves a weak residue of type A photoemf.

6) Heating the films in air leads to more complex, chemical transformations, including the oxidation of zinc and the liberation of free tellurium.

USSR

IGNATYUK, V. A., et al, Fizika i Tekhnika Poluprovonikov, Vol. 4, No. 3, March 1970, pp. 472-477

The changes due to this last factor include the formation of oxide layers between the individual grains in the film, increasing resistance and improving the conditions for summation of emf from individual elements. In addition, new photovoltaic surface elements can be formed. Some of these changes are irreversible, some are reversible, being connected with the absorption and desorption of gases at the surface.

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UDC 577.4

USSR

IGOLINSKIY, V. G., VIDIN, B. V.

"Analytical Methods of Monitoring Logical Circuits"

V sb. Tekhn. diagnostika (Technical Diagnostics -- collection of works), Moscow, Nauka Press, 1972, pp 211-213 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V410)

No abstract

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USSR UDC 615.371:576.851.45/.015.2:615.835.5/.015.4:612.112.3

OSIPOV, V. I., VOROB'YEV, A. A., IGONIN, A. M., ZEMSKOV, Ye. M., and PATRIKEYEV, G. T.

"Electron Microscopic Studies of Phagocytosis Kinetics of Plague Vaccine Strain EV by Pulmonary Macrophages in Guinea Pigs on Intratracheal Immunization"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1973, pp 42-44

Abstract: Electron microscope studies were conducted on phagocytosis of a live plague vaccine, strain EV, administered into the tracheas of guinea pigs. The results showed that 5 to 15 minutes after administration the majority of the bacterial cells adhered to the surfaces of alveolar macrophages. This was followed by the formation of pseudo-pods, invagination, and vesicle formation. After 45 to 60 minutes the vast majority of the bacterial cells were within the macrophages, with only individual microbes located extracellularly. After 90 minutes the endocytic vesicles contained only amorphous masses and in only a few cases could residues of the vaccine be identified.

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USSR UDC 669.72+669.73:620.18

MAKOGON, M. B., IGONIN, G. S., and IGONINA, T. N., Siberian Physico Technical Institute imeni V. D. Kuznetsov

"Formation of the Domain Structure in an MgCd alloy. Report 2"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 4, Oct 70, pp 727-732

Abstract: A study was made of the effect of the rate of quenching of an MgCd alloy from $T > T_s$ (T_s is the temperature of the order-to-disorder transition) on the microstructure and nature of its change during tempering. The formation of a fine-domain structure in the MgCd alloy in the process of quenching from $T < T_s$ proceeded at a high rate. During formation of the structure stressed appeared which were recorded radiographically. In the process of tempering domain growth and stress discharges took place. The authors thank A. A. TUKHFATULLIN for valuable discussions regarding the results of the work.

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USSR

UDC 669.72'[illegible].75:548.0

IGONIN, G. S., MAKOGON, M. B., and IGONINA, T. N., Siberian Physico-Technical Institute

"Formation of the Domain Structure in the Alloy MgCd. I."

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep [illegible], pp 545-549

Abstract: The formation of the domain structure of the alloy MgCd with ordering is studied. Possible versions of combination of disoriented domains in the (100) plane of the orthorhombic lattice corresponding to the base plane of the hexagonal structure of the disordered alloy are analyzed. The configuration of dislocations in the (100) plane is studied. The boundaries of disoriented domains are a great obstacle for shear propagation.

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Acc. Nr. AP0055643 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0960

112174c **Differential thermal analysis study of phenol-formaldehyde novolaks hardening with hexamethylenetetramine.** Kurachenkov, V. L.; Petrakov, V. M.; Igonin, L. A. (Nauch. Issled. Inst. Plast. Mass., Moscow, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(2), 127-9 (Russ). The hardening of com. novolak resin K-18 contg. 10% hexamethylenetetramine proceeds differently at atm. and high pressure. DTA shows that the 1st stage process, which at atm. pressure occurs at 120-60° does not occur under pressure ≥3000-4000 kg/cm². The DTA curves have a 2nd exothermic peak at 230-60° corresponding to the 2nd stage hardening at which resol-type resins are formed. CPJR

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USSR UDC 669.72+669.73:620.18

MAKOGON, M. B., IGONIN, G. S., and IGONINA, T. N., Siberian Physico Technical Institute imeni V. D. Kuznetsov

"Formation of the Domain Structure in an MgCd alloy. Report 2"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 4, Oct 70, pp 727-732

Abstract: A study was made of the effect of the rate of quenching of an MgCd alloy from $T > T_s$ (T_s is the temperature of the order-to-disorder transition) on the microstructure and nature of its change during tempering. The formation of a fine-domain structure in the MgCd alloy in the process of quenching from $T < T_s$ proceeded at a high rate. During formation of the structure stressed appeared which were recorded radiographically. In the process of tempering domain growth and stress discharges took place. The authors thank A. A. TUKHFATULLIN for valuable discussions regarding the results of the work.

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USSR

UDC 669.72+669.7:543.0

IGONIN, G. S., MAKOGON, M. B., and IGONINA, T. N., Siberian Physico Technical Institute

"Formation of the Domain Structure in the Alloy MgCd. I."

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep 70, pp 544-549

Abstract: The formation of the domain structure of the alloy MgCd during ordering is studied. Possible versions of combination of disoriented domains in the (100) plane of the orthorhombic lattice corresponding to the base plane of the hexagonal structure of the disordered alloy are analyzed. The configuration of dislocations in the (100) plane is studied. The boundaries of disoriented domains are a great obstacle for shear propagation.

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USSR UDC 616.981.55-092.9-085.214.22-059:615.221]-07:616.832-008-07

KRYZHANOVSKIY, G. N., SHEYKHON, F. D., and IGON'KINA, S. I., Institute of Normal and Pathological Physiology, USSR Academy of Medical Sciences

"Effect of Some Phenothiazine Compounds and α-Adrenergic Blocking Agents on Spinal Cord Activity After Disruption of the Inhibitory Mechanisms by Tetanus Toxin"

Moscow, Farmakologiya i Toksikologiya, No 3, 1973, pp 276-280

Abstract: Intravenous injection of chlorpromazine (0.75 mg/kg) resulted in deep depression of background and trace electrical activity of the extensor and flexor muscles in rats with local tetanus and intact spinal cord but only mild inhibition of evoked activity. However, in animals with transected spinal cord, chlorpromazine in the same dose produced the opposite effect -- intensification of background and especially trace activity. Chlorpromazine also intensified the electrical activity of the muscles in animals without tetanus but with transected spinal cord. The α-adrenergic blocking agents phentolamine and to a lesser extent dihydroergotoxin also inhibited electrical activity in rats with intact spinal cord and intensified it in the injured animals. Trifluoperazine had virtually no effect on animals with tetanus whether their spinal cord was intact or not.
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USSR UDC 632.95

ZUBAREV, S. B., IGOSHEV, A. D., LUKASHENOK, V. N., and SOBOLEV, A. S., Ufa Chemical Plant

"A Method for Separating 2,4-Dichlorophenol"

USSR Author's Certificate No 250154, filed 29 May 67, published 15 Jan 70 (From RZh-Khimiya, No 22, 25 Nov 70, Abstract No 22 N707 P by I. M. Mil'shteyn)

Translation: A method is proposed for separating 2,4-dichlorophenol (I), a half-finished product used in the manufacture of herbicides, from a mixture of chlorophenol isomers involving the use of multistage alkaline extracttion in an organic solvent medium. The two-column system consists of two rotary-disk extractors possessing 27 and 22 diska rotating at 100 and 200 rpm, respectively. A NaOH solution is the extracting agent in both columns, 0.9 N for the first and 0.367 N for the second. A mixture of 4.13 N of commerical I is perchloroethylene is supplied to the first column from above while the NaOH enters from below. The raffinate of the first column is 99.8% I. The extract of the first column is acidified with HCl acid. Commercial I is extracted with perchloroethylene, diluted to 0.745 N, and supplied to the second column. The resulting 91.1% I is returned to the first column. 1/1

USSR

BASOV, N. G., BASHKIN, A. S., IGOSHIN, V. I., ORAYEVSKIY, A. N., and YURYSHEV, N. N.

"Study of Vibrational Energy Transfer From OD to CO_2"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 16, No 10, 20 Nov 72, pp 551-555

Abstract: The article reports the first detection of effective energy transport from the OD radical to CO_2 molecules, resulting in the laser effect in a mixture of O_3, D_2, and CO_2 at a wavelength of 10.6 microns. A simple analytic reaction model and the results of measuring the time characteristics of the laser generation pulse are used to evaluate the rate constant for vibrational-vibrational energy exchange between OD and CO_2. The authors used two measurement methods -- according to the time delay of generation relative to the onset of initiation, and according to attenuation of the chemical laser generation signal. A laser tube 80 cm long and 1.5 cm in diameter was used in the experiment. Pumping was effected by two IFP-20000 lamps.

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USSR

UDC 621.365.82

IGOShIN, V. I., KULIKOV, L. V., NIKITIN, A. I.

"Measuring the Velocity Constant of Chemical Reactions of Atomic Fluorine with Hydrogen and Deuterium by Laser Methods"

Kratkiye soobshch. po fiz. (Brief Communications on Physics), No 1, 1973, pp 3-9, RZh-Fizika, No 9, Sep 73, Abstract No 9D819

Translation: The shape of the oscillatory pulse of a chemical laser was used to measure the velocity constant of the reaction of atomic fluorine with hydrogen and deuterium. The chemical laser worked on a mixture of NS_3 and H_2 or D_2 and was triggered by an electrical pulse of 1 microsecond's duration at an emf of 60 kilovolts with energy up to one joule. A numerical calculation of the laser kinetics is given, and the conditions under which the primary contribution to excitation of the oscillatory levels of HF(BF) is due to the reaction of atomic fluorine with hydrogen (deuterium) are determined. The measured values of the velocity constant are in good agreement with the known values. P. Sh.

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UDC: 512.7

USSR

IGOSHIN, V. I.

"Characterized Manifold of Lattice"

Saratov, V sb. "Uporyadochennyye mnozhestva i reshetki" (Ordered Sets and Lattices --collection of works) No 1, Saratov University, 1971, pp 22-30 (from RZh--Matematika, No 4, 1972, Abstract No 4A340)

Translation: Let V_0 be a fixed manifold of algebras, and let $\mathfrak{X}^*$ be the totality of finite algebras from V_0. The submanifold (if it exists) consisting of those and only those algebras and subalgebras which are not isomorphic to any algebras from $\mathfrak{X}^*$ we shall designate as $V(\mathfrak{X}^*)$ and refer to as characterized. Let $\mathfrak{X}(V)$ be the least of the sets $\mathfrak{X}^*$, for the characterized submanifold $V \subset V_0$, such that $V = V(\mathfrak{X}^*)$. This $\mathfrak{X}(V)$ is said to be characteristic for V. For example, if L_1 is a pentagonal, nonmodular

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IGOSHIN, V. I., Uporyadochennyye mnozhestva i reshetki, No 1, 1971, pp 22-30

lattice and L_2 is a five-element, three-atom lattice, we have for the manifold M of all modular lattices and the manifold D of all distributive lattices : $\mathfrak{X}(M) = \{L_1\}$, $\mathfrak{X}(D) = \{L_1, L_2\}$. Similar useful examples are given. The peculiarities of characterized manifolds are studied. Let us designate by $\mathfrak{M}_V$ that class of all lattice manifolds which are not submanifolds of the characterized manifold V. It is proved, for example (theorem 8) that in an ordered (included) set of $\mathfrak{M}_V$, each element contains a minimal element, and each minimal element is a manifold generated by a lattice from $\mathfrak{X}(V)$. It then follows that if the manifold is characterized, it can be specified by a finite system of identities. Thus, noncharacterized lattice manifolds exist.

Reviewer's note: As the author has informed the reviewer, the proof given in the paper of theorem 9 is incorrect; however, the theorem can be obtained from theorem 8. V. Saliy

USSR UDC 621.378.33

BASOV, N. G., IGOSHIN, V. I., MARKIN, Ye. P., ORAYEVSKIY, A. N.

"Dynamics of Chemical Lasers"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 3-24

Abstract: The article is a survey of chemical methods of laser excitation. An analysis is made of the possibility of inverting populations of the vibrational levels of molecules in the case of self-sustaining chemical processes (chain and branched-chain reactions, thermal explosion). Special consideration is given to problems in the theory of vibrational relaxation as applied to chemical lasers. The results of experimental studies of a number of laser systems with chemical pumping are presented. Some methods of initiating a reaction in large volumes of reactant are discussed on the qualitative level. A list of chemical lasers is presented (as of 1 Aug 70) with indication of their operating characteristics. Six illustrations, three tables, and a bibliography of 99 titles.

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USSR UDC 621.373:530.145.6

BASOV, N. G., IGOSHIN, V. I., MARKIN, Ye. P., ORAYEVSKIY, A. N.

"Dynamics of Chemical Lasers. (A Survey)"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 2, Moscow, 1971, pp 3-24 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7D132)

Translation: The paper is a survey of chemical methods of laser excitation. An analysis is made of the possibility of obtaining an inverse population of the vibration levels of molecules in the case of self-sustained chemical processes (chain and branched-chain reactions, heat explosion). Special attention is given to problems of the theory of vibrational relaxation as applied to chemical lasers. The results of an experimental study of a number of lasers with chemical pumping are presented. Some methods of initiating reaction in large volumes of the reagent are qualitatively discussed. Chemical lasers are listed (as of 1 August 1970) with an index of working characteristics. Six illustrations, three tables, bibliography of ninety-nine titles. Resumé.

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USSR UDC: 621.374.33

IGUMNOV, D. V., SHVEDOV, A. N.

"Experimental Study of the Speed of Micropower Pulse Circuits Based on Transistors"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1972, vyp. 60, pp 53-59 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G215 by K. S.)

Translation: The paper presents the results of an experimental study from which the authors draw conclusions on the advantage of DTL microcircuits over RTL microcircuits. It is shown that in the case of microcircuits, the use of accelerating capacitances at the input leads to a deterioration of dynamic parameters. The operation of circuits with additional symmetry is considered. Bibliography of 3 titles.

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USSR UDC: 621.375

IGUMNOV, D. V.

"Some Singularities of Micropower Transistor Followers"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices in Electrical Communications Technology--collection of works), vyp. 7, Moscow, "Svyaz'", 1971, pp 107-112 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D68)

Translation: The basic parameters of micropower emitter and source followers are considered. It is shown that a transition from the nominal operating mode to the micromode impairs the matching properties of followers based on transistors, which restricts the regions where they can be effectively used. Two illustrations, bibliography of three titles. Resumé.

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USSR

NIKOLAYEVSKIY, IOSIF FEDOROVICH, and IGUMNOV, DMITRY VASIL'YEVICH

"Parameters and Maximum Operating Modes of Transistors" (Parametry i Predel'nyye Rezhimy Raboty Tranzistorov), Moscow, Izd-vo "Sovetskoye Radio," 1971, 29,000 copies, 384 pages

Abstract: The book contains a wealth of information concerning the physical phenomena in the transistor needed by the engineer working in the development and operation of radio-electronic equipment.

The electrical and thermal parameters of the transistor, its characteristics and equivalent circuits, maximum permissible direct and pulsed currents, voltages and power are examined. Possibilities are shown for utilizing a transistor as an amplifier and switch in the reverse switch-on mode and in the micromode. Special attention is given to the relations of transistor parameters and recommendations for determining its specifications, which are omitted from handbooks and technical specifications, are given.

The book is intended for engineer-developers of transistorized equipment and is also recommended as a text book for students of the corresponding faculties in universities.

USSR

NIKOLAYEVSKIY, IOSIF FEDOROVICH, et al., "Parameters and Maximum Operating Modes of Transistors" (Parametry i Predel'nyye Rezhimy Raboty Tranzistorov), Moscow, Izd-vo "Sovetskoye Radio," 1971, 29,000 copies, 384 pages

The book has 29 tables, 132 figures, and 145 citations. Chapter headings are as follows:

USSR

UDC 621.382.3

NIKOLAYEVSKIY, I. F., IGUMNOV, D. V.

"Parameters and Maximum Performance of Transistors"

Parametry i predel'nyye rezhimy raboty tranzistorov (cf. English above), "Sov. radio," 1971, 390 pp, ill., 1 r 36 k (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B155K)

Translation: The book contains the combination of data on the physical phenomena in transistors which is necessary for engineers concerned with the development and operation of radioelectronic apparatus. Considered are the electrical and thermal parameters of transistors, their characteristics and equivalent circuits, and the maximum permissible d-c and pulse current, voltage, and power. The possibilities are shown of using transistors as amplifiers and switches in an inverse connected and in microregimes. Special consideration is given to the relations of transistor parameters and recommendations with respect to the determination of data lacking in reference books and in technical specifications. The book is intended for engineer-developers of transistorized apparatus, and can also be recommended as school equipment for students of corresponding

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110010-3"

USSR

NIKOLAYEVSKIY, I. F., IGUMNOV, D. V., Parametry i predel'nyye rezhimy raboty tranzistorov (cf. English above), "Sov, radio," 1971, 390 pp, ill., 1 r 36 k (from RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B155K)

faculties of higher educational institutions. 132 ill. 29 tab. 145 ref. Summary.

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USSR

UDC 621.382.322

IGUMNOV, D.V.

"Effect Of Channel Width On The Parameters Of Field-Effect Transistors In A Microregime"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Issue 24, Moscow, "Sov.radio," 1970, pp 204-213 (from REh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B262)

Translation: The effect of the channel width on the transconductance of field-effect transistors with a p-n junction is considered. It is shown that the transconductance has a maximum value with definite values of the channel width and cutoff voltage for a specified drain current. Other conditions being equal, a decrease of the channel width makes it possible to increase the voltage amplification factor. 5 ill. 4 ref. Author's abstract.

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USSR

UDC 535.8:666.211.189-7

IGUMNOV, N. I., and PAVLUKHIN, O. I.

"New Light Guide for the Infrared Range"

V Sb. "Vopr. Teorii i Tekhn. Avtomat. Sistem" [In the Collection "Problems of the Theory and Technology of Automatic Systems"], Dnepropetrovsk, 1971, pp 116-126 (from Referativnyy Zhurnal, No 11, Nov 72, 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 11.32.1102)

Translation: In the practice of modern production and in different investigations it is often necessary to perform a contactless temperature control of different bodies and objects of small sizes or of almost inaccessible surfaces heated up to relatively not high temperatures corresponding to the infrared range of radiated wave lengths, 3-8 μm. Modern optical methods using lens and optical reflection systems (in the form of curved mirrors) can prove to be unsuitable in the actual case, owing to the impossibility to eliminate effects of the background radiation on the result of measurement, effects of outside radiations, or effects of heated neighboring surface sections. A description is presented of the light conducting optical system, making possible not only to exclude effectively the mentioned factors, but also to eliminate at the same time considerably or completely the effect of the intermediate medium between the

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IGUMNOV, N. I. and PAVLUKHIN, O. I., V Sb. "Vopr. Teorii i Tekhn. Avtomat. Sistem", 1971, pp 116-126

temperature sensor and the control volume on the result of the measurement. Five illustr., seven biblio. refs.

2/2

USSR UDC: 518.5:681.3.06

LIPOVETSKAYA, L. L., IKAUNIYEK, E. A., , IKAUNIYEK, B. A.

"Computer Modeling of the Operation of a First Aid Station"

Tr. VNII med. priborostr. (Works of the All-Union Scientific Research Institute of Medical Instrument Making), 1971, vyp. 1, pp 33-36 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V991)

Translation: A mathematical description is given of the operation of a medical first aid station, and a program is derived for statistical modeling of the work of the station on a computer. Optimum conditions for first aid station management are selected on the basis of statistical data for the Riga station. Authors' abstract.

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USSR UDC: 518.5:681.3.06

LIPOVETSKAYA, L. L., IKAUNIYEK, E. A., , IKAUNIYEK, B. A.

"Computer Modeling of the Operation of a First Aid Station"

Tr. VNII med. priborostr. (Works of the All-Union Scientific Research Institute of Medical Instrument Making), 1971, vyp. 1, pp 33-36 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V991)

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1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SEDIMENTATION ANALYSIS OF OIL HYDRATION DEPOSITS -U-

AUTHOR-(03)-IKHNO, N.P., BARTASHEVICH, E.I., KAMINSKIY, N.A.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR, PROM. 1970, 36(2), 38-40

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--CRUDE OIL, PETROLEUM DEPOSIT, TEST METHOD, SODIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1560 STEP NO--UR/9085/70/036/002/0038/0040

CIRC ACCESSION NO--AP0118543
UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0118543

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FRACTIONAL COMPN. OF THE HYDRATION PPT. IS NOT CONST. AND DEPENDS ON THE QUALITY OF THE OIL AND METHOD OF HYDRATION. THE RADIUS OF THE PPTD. PARTICLES IS 0.023-0.006 CM. AND THE RATE OF SETTLING IS 0.9-0.06 M-HR. TREATMENT OF OIL WITH 20PERCENT NACL AFTER HYDRATION INCREASES RATE OF PPTN. 1.5-2 TIMES. THE AMT. OF LARGE PARTICLES OBTAINED BY THIS TREATMENT INCREASES 1.1-2.0 TIMES. FACILITY: GOMEL, ZHIR. KOMB., GOMEL, USSR.

UNCLASSIFIED

Acc. Nr AP0054653 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR 9055

113076j Continuous decomposition of soap in neutralized hydrogenated fat by citric acid in a cascade mixer. Ikhno, N. P.; Bruk, T. M. (Zhir. Komb., Gomel, USSR). *Maslo-Zhir. Prom.* 1970, 36(1), 23–5 (Russ). A continuous cascade mixer—a glass pipe 2 m long, inside diam. 102 mm, placed at an angle of 30° under the overflow pipe of a neutralization vessel—was used for decompn. of excess soap by citric acid (I). Inside the glass pipe are 2 arms holding 20 stainless-steel barriers, which cover 90% of the pipe diam. A 5% soln. of I was dosed from a reservoir placed over the overflow pipe and equipped with a float and a capillary-ended siphon tube. The mixer has a capacity of 2.5–3.5 × 10^3 kg/hr of fat with a final soap concn. of 0.015–0.020% when a 5% excess of I at 90–5° is used.

M. Dokladal

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--KINETICS AND MECHANISM OF HOMOGENEOUS CATALYTIC ACTIVATION OF CARBON MONOXIDE IN SOLUTIONS. VII. KINETICS OF CR SUB2 O PRIME2 SUB7

AUTHOR-(04)-FASMAN, A.B., IKHSANOV, ZH.A., PUSTYLNIKOV, L.M., LUKYANOV, A.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 401-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, CHEMICAL REDUCTION, CARBON MONOXIDE, CHROMIUM, PLATINUM ELECTRODE, CATALYST ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1222 STEP NO--UR/0076/70/044/002/0401/0405

CIRC ACCESSION NO--AP0128640

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128640

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HOMOGENEOUS CATALYTIC REDN. OF CR SUB2 O SUB7 PRIME2 WITH CO IN MINERAL AND ORG. ACIDS FOLLOWS THE OVERALL PATTERN CR SUB2 O SUB7 PRIME2 NEGATIVE PLUS 3CO PLUS 8H PRIME POSITIVE EQUALS 2 CR PRIME3POSITIVE PLUS 3 CO SUB2 PLUS 4 H SUB2 O. THE KINETICS OF THIS REACTION IN AQ. SOLNS. OF H SUB2 SO SUB4 WAS STUDIED; AR DILD. CO WAS USED, H SUB2 (PDCL SUB4) SERVED AS A CATALYST, AND THE RATES WERE FOLLOWED POTENTIOMETRICALLY. RESULTS REVEALED AN ANOMALOUS DEPENDENCE OF THE DIMENSIONLESS D. OF THE GAS STREAM ON THE DIMENSIONLESS CRITERION OF HATTA, WHEN THE TEMP. AND THE AMT. OF CATALYST WERE CHANGED. THEORETICAL ANAL. WAS ATTEMPTED. RESULTS JUSTIFIED THE ADOPTION OF THE FILM THEORY OF ABSORPTION. EQUATIONS WERE DEVELOPED TO DET. THE CONCN. OF THE GAS COMPONENT ALONG THE VERTICAL AXIS OF THE REACTOR. THE PROCEDURE IS BASED ON THE COMPARISON OF THE POTENTIAL OF A PT ELECTRODE AT A GIVEN DEPTH WITH THE VALUE OF THE HATTA NO. FACILITY: KAZ. GOS. UNIV. IM. KIROVA, ALMA-ATA, USSR.

UNCLASSIFIED

USSR UDC 628.543:661.183.12

ZAGRAY, YA. M., DOVGUSHA, P. I., IKKhiKhV [expansion unknown] AN USSR (Academy of Sciences, Uzbekistan SSR)

"Principle Technological Systems for Salvaging Light Metals From Polluted Waters by Using a Continuous Exchange"

Kiev, Khimicheskaya Tekhnologiya, No 6, Nov/Dec 73, pp 52-55

Abstract: The effective utilization may be made of continuous flow ion exchange resins for purification of waters which are very hard or which contain iron or significant amounts (from 0.5 to 2.0 g/l) of suspended material if a pseudo-liquefaction technique is used. A system is shown for the continuous cycling of large volumes of solution over the ion exchange resins, to remove the light metals such as Zn^{+2}, Ca^{2+}, and Mg^{2+}. The total amount and % of the metal removed was more or less a function of temperature and pH, depending on the particular metal ion involved. A table shows one example of pH dependence.

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Acc. Nr. AP0053759 Abstracting Service: CHEMICAL ABST. 6420 Ref. Code UR 0368

112003w **Ir-absorption spectra and interaction of isoprene with a modified Aerosil surface.** Nel'son, K. V.; Ikonitskii, I. V.; Ryzhikov, V. A. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 80-4 (Russ). The effects of the reaction between Aerosil (I) and $TiCl_4$ on the structural changes occurring in isoprene (II) during adsorption were studied by means of a spectrophotometer IR-10 at 2000-3750 cm^{-1}. Adsorption of $TiCl_4$ on I brought about the formation of reactive sites on which chemisorption of II took place. $TiCl_4$-modified I surface initiated the polymn. of II to give a nearly linear polyisoprene. On the other hand, adsorption of II vapors on a nonmodified I surface involved only a negligible interaction with the OH groups of I. CKJR

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REEL/FRAME
19830822

7CB

USSR

UDC 627.81.004.1(47+57)

IKONNIKOV, L. B.

"Effect of the Gor'kiy Reservoir on Creeping Slopes"

Tr. koordinats. soveshchaniy po gidrotekhn. (Works of the Coordinating Meetings on Hydroengineering), No 59, 1970, pp 81-85 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D43)

Translation: In the 13 years of existence of the reservoir, two stages have been noted in the development of the creep processes. The first stage was characterized by mass occurrence of creep phenomena connected basically with accelerated wave abrasion of the banks and sharp intensification of wetness of the banks. In the second stage, there is local formation of slides as a result of increased steepness of the shore banks resulting from slow predominately wave erosion of their base. Because of the denuding of the banks, small overflows have become widespread during this period, usually in the spring. During the given stage it is possible to expect large slides on the banks with increased stability as a result of high bluffs. There are 3 illustrations.

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Automatic Control: Systems

USSR

UDC: 621.317.799:621.318.1.042.13

BOCHANOV, Ye. Ye., IKONNIKOV, S. N.

"Pulse Method of Measurement of Magnetostriction of Cylindrical Magnetic Films"

Tr. Mosk. Aviats. In-Ta [Works of Moscow Aviation Institute], No 233, 1971, pp 207-212 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A345 by A. B.)

Translation: A method is studied for testing cylindrical magnetic films with circular anisotropy, deposited on an elastic conducting substrate. In the device produced by this method, a wire rod with a film is fastened on the axis of a solenoid, creating a homogeneous magnetic field. The program of current pulses in the circuit with the film contains 2 synchronized sequences of different polarity and frequency, sufficient for saturation of the film. The signal from the film is displayed on an oscilloscope, synchronized with high-frequency pulses. 2 figures; 4 references.

1/1

Semiconductor Technology

USSR UDC 546.681'19:539.238

IKONNIKOVA, G. M., and IVLEVA, O. M., Siberian Physicotechnical Institute imeni V. D. Kuznetsov

"Effect of a Constant Electrical Field on the Epitaxial Growth of GaAs"

Moscow, Izvestiya Akademiya Nauk SSSR, Neorganicheskiye Materialy, Vol 10, No 3, Mar 74, pp 397-401

Abstract: A series of tests was conducted to determine the effect of a constant electrical field on the epitaxial growth of FaAs and to reveal the effect of this field on the rate of mass transfer, morphology, and structure of the grown layers. To determine the electrical field effect in the process of growth and alloying of GaAs layers the following magnitudes were measured: rate of rgrowth, dislocation density in the layers, thickness of the n-type transition region, and electrical properties of the layers. It was found that a negative potential in the substrate increases the rate of growth while a positive potential decreases growth rate. A decrease in dislocation density was observed in the GaAs layers when the difference in the potentials was increased to 600 v; further increase in the electrical potential leads to an increase of dislocation density. When the electrical potential goes from 0 to 1000 v the p-n transition moves to the film-substrate interface. Five figures, 11 bibliographic references.
1/1

USSR

UDC 615.471:[614.777+628.19]074:543.42.062

SINEL'NIKOV, V. Ye., TIMAKHOV, O. N., ININ, Yu. S., IKONNIKOVA, S. V., GIKKEL', A. A., GONCHAROV, A. T., AFONIN, V. I., PERSIYANTSEVA, V. B., and SOKOLOV, B. K., Central Design Bureau and Pilot Plant, USSR Academy of Medical Sciences, Moscow and Institute of Biology of Inland Waters, USSR Academy of Sciences, Borok, Yaroslavl Oblast

"A Multipurpose Spectrofluorimeter to Study Natural and Polluted Water"

Moscow, Gigiyena i Sanitariya, No 1, 1973, pp 65-68

Abstract: The akva-MF spectrofluorimeter developed by the authors can be used for rapid determination of individual organic and mineral compounds present in water, for automatic regulation of fluorescent substances in a stream, for detection in lakes and seas of water masses differing in chemical composition and origin, and for study of the conversion and breakdown of compounds under the influence of biological and physicochemical factors. Analyses can be made in the laboratory, in the field, or on a research vessel. The spectrum of fluorescent compounds can be obtained directly at the sampling site. The apparatus is a single-beam recording spectrofluorimeter designed to function in the visible and UV regions of the spectrum. With the use of interchangeable attachments, it can record spectra of fluorescence, excitation, and phosphorescence in a solution as well as substances separated in chromatographic zones on paper.

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USSR

UDC 619;616.981.42+616.982.2-084;636.22/.28

YERMAKOV, P. I., [illegible], N. A., AFANAS'YEV, V. M., ALEKSEYEV, K. K., and IKONNIKOV, V. D., Saratov Oblast Veterinary Department

"Organization of Measures to Control Brucellosis and Tuberculosis in Cattle"

Moscow, Veterinariya, No 1, 1972, pp 46-48

Abstract: The incidence of tuberculosis and brucellosis among cattle and the incidence of [illegible] among sheep in Saratovskaya Oblast (a region of southeastern Russia on both sides of the lower Volga) built up by 1964 to the point where almost one-quarter of all the animals were suffering from chronic infection. Following a detailed study of the situation on each affected farm, comprehensive plans were drawn up to halt the spread of the diseases. These plans included regular examination of the animals for brucellosis and tuberculosis, isolation of young healthy animals to create new herds, compulsory pasteurization of milk, disinfection measures, and plowing up and liming soils on infected farms. Conferences and visiting experts were organized to [illegible] control measures. As a result of these steps, the [illegible] and [illegible] brucellosis and tuberculosis, respectively. The [illegible] from about 2.5 to [illegible] other chronic diseases of cattle.

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USSR

UDC: 621.385.002.54(088.8)

RYAZANOV, V. G., ROMANYUK, R. F., KHEYFETS, A. D., IKONNIKOV, Yu. N.

"A Wobbulator for Vacuum Resonators in Discriminators"

USSR Author's Certificate No 256093, filed 10 Apr 67, published 3 Apr 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D100 P)

Translation: This Author's Certificate introduces a wobbulator for vacuum resonators in discriminators. The device contains a rotating plate located in the face end of the resonator. To improve reliability and simplify operation, the rotating plate is separated from the vacuum resonator by a hermetically sealed cap, and is equipped with rotators which operate mechanically, are transparent to radio waves, and are connected to the resonator. Resumé.

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1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INFLUENCE OF INTRINSIC CONDUCTIVITY ON THE THERMO ELECTRONIC PROPERTIES OF BI SUB2 TE SUB3-X SE SUBX SOLID SOLUTIONS -U

AUTHOR-(04)-GOLTSMAN, B.M., IKONNIKOVA, G.N., KUTASOV, V.A., SHAPIRO, E.KH.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1402-9

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INTRINSIC SEMICONDUCTOR, SEMICONDUCTOR CONDUCTIVITY, SOLID SOLUTION, THERMAL EMF, FORBIDDEN ZONE WIDTH, FERMI LEVEL, ELECTRON MOBILITY, BISMUTH COMPOUND, TELLURIDE, SELENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0888 STEP NO--UR/0181/70/012/005/1402/1409

CIRC ACCESSION NO--AP0131475

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN TERMS OF THE MODEL IN WHICH THE THERMOELEC. FIGURE OF MERIT, Z, IN THE PRESENCE OF INTRINSIC COND. IS DESCRIBED BY A REDUCED WIDTH OF THE FORBIDDEN BAND, ETA G, THE POSITION OF THE ELECTRON FERMI LEVEL, AND THE MATERIAL PARAMETERS BETA AND GAMMA (BETA IS SIMILAR TO CONST. T PRIME5 OVER 2 (M SUBN) PRIME 3 OVER Z MU SUBCN OVER X SUBP; GAMMA EQUALS (MU SUBOP OVER MU SUBON) (M SUBP OVER M SUBN) PRIME5 OVER 2 WHERE M SUBN, MU SUBON, M SUBP, AND MU SUBOP ARE THE EFFECTIVE MASSES AND MOBILITIES OF ELECTRONS AND HOLES, RESP., AND X SUBP IS THE THERMAL COND. OF THE CRYSTAL LATTICE), CALCN. WAS CARRIED OUT FOR A SERIES OF VALUES, BETA, ETA G, AND GAMMA. THE REGION OF THE CHOSEN VALUES OF ETA G, BETA, AND GAMMA INCLUDED EXPTL. VALUES OF THESE PARAMETERS OBSD. IN THE INVESTIGATED SYSTEM OF THE SOLID SOLNS. BI SUB2 TE SUB3-X SE SUBX. FOR X IS GREATER THAN 0.3 (FOR SOLID SOLNS. WITH THE WIDTH OF THE FORBIDDEN BAND E SUBG IS GREATER THAN 0.2 EV, ETA G EQUALS 7.8), THE EFFECT OF INTRINSIC COND. ON Z CAN BE NEGLECTED. DUE TO THIS EFFECT, VARIATION OF GAMMA WITH Z IS PRACTICALLY ABSENT. HOWEVER, FOR BI SUB2 TE SUB3, Z IS ONLY SLIGHTLY SENSITIVE TO VARIATIONS IN GAMMA, DEVIATIONS IN GAMMA BY AS MUCH AS 30PERCENT LEAD TO VARIATION IN Z OF 3.5PERCENT. VALUES MORE DETD. OF THERMAL EMF. AND ELEC. COND. FOR MAX. VALUES OF Z FOR ALL INVESTIGATED COMPNS. OF THE SYSTEM BI SUB2 TE SUB3-X SE SUBX. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

Acc. Nr. ATO 108000

Abstracting Service: CHEMICAL ABST. 6-70

Ref. Code UR0425

128182q Thermogravimetric analysis of alkaline-earth metal hydrofluorides. Ikrami, D. D.; Paramzin, A. S. (Inst. Khim., Dushanbe, USSR). *Dokl. Akad. Nauk Tadzh. SSR* 1970, 13-(1), 40–3 (Russ). Tests were conducted at 17–20°/min. on a Kurnakov pyrometer. The most heat resistant were monohydrofluorides, and $BaF_2.HF > SrF_2.HF$. $SrF_2.2.5HF$, $BaF_2.3HF$, and $BaF_2.4.5HF$ decompd. gradually to form $MF_2.HF$. The total decompn. scheme was: $SrF_2.2.5HF \xrightarrow[85°]{-0.5\,HF} SrF_2.2HF \xrightarrow[100°]{-HF} SrF_2.HF \xrightarrow[185°]{-HF} SrF_2$. $BaF_2.3HF$ and $BaF_2.4.5HF$ decompd. at 125° to $BaF_2.HF$, which loses HF at 225°. S. Folek

REEL/FRAME
19891580

USSR UDC 340.67:615.285.7

TASHPULATOV, A. YU., and IKRAMOV, Tashkent Pharmaceutical Institute

"Determination of Residual Methyl Mercaptophos in Biological Matter"

Moscow, Farmatsiya, Vol XX, No 6, Nov-Dec 71, pp 63-66

Abstract: Extraction with ether and chloroform have been recommended in determining the amount of residual methyl mercaptophos in foods and vegetable products; but no adequate procedures for making corresponding determinations in the case of objects of forensic chemical research have been arrived at, despite the widespread use of this insecticide in Soviet agriculture.

Using ground human liver tissue as a test object (50 mg of methyl mercaptophos mixed with 100 g of tissue), the authors tried six different extractants to measure residual mercaptophos: benzene, chloroform, dichloroethane, diethyl ether, n-butyl alcohol, and petroleum ether. In addition, they studied extractive methods in current use (steam distillation, and extraction with acidified alcohol and acdified water), as well as the effect of repeated application of the extractant, delay between ingestion and extraction, and the degree of acidity.

Chloroform was found to be the most effective extractant, when used in

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USSR

TASHPULATOV, A. YU., and IKRAMOV, Farmatsiya, Vol XX, No 6, Nov-Dec 71, pp 63-66

four new portions at pH of 2-5. Details of laboratory procedure, as well as tabular summaries of data obtained, are included in the paper.

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USSR UDC 577.1:615.7/9

IKRAMOV, L. T., ALIMKHANOV, O. A., and MAKSUMOVA, Kh. B.

"Purification of Buthiphos in the Study of Biological Material"

V sb. Materialy Yubileyn. nauchn. konferentsii, posvyashch. 100-letiyu so dnya rozhd. V. I. Lenina. Tashkent. farmatsevt. in-t, 1970 (Materials of the Anniversary Conference in Celebration of the 100th-brithday of V. I. Lenin, Tashkent. Pharmaceutical Institute -- Collection of Works), Tashkent, 1970, pp 254-256 (from RZh-Biologicheskaya Khimiya, No 3, Feb 71, Abstract No 3F2022)

Translation: Separation of extracts by thin layer chromatography on silica gel is proposed for the semiquantitative determination of butiphos [S,S,S-tributyltrithiophosphate] in biological media.

A. Ignatyev

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USSR UDC 340.67:615.285.7

IKRAMOV, L. T., TASHPULATOV, A. YU., and ABDUVAKHABOV, K. A.,
Tashkent Pharmaceutical Institute

"Reactions for Detection of Methylmercaptophos in Forensic Chemical Analysis"

Moscow, Farmatsiya, Vol 19, No 6, Nov-Dec 70, pp 70-73

Abstract: It has been determined that methylmercaptophos (I) reacts specifically with mercuric chloride, mercuric bromide and iodine monochloride. Other structurally related pesticides failed to exhibit this specificity. To a drop of alcohol or water solution of I placed on a slide a drop of 2% aqueous solution of mercuric chloride is added and left standing for 15-20 min in a humidity chamber. Under microscope yellow microcrystals can then be observed. Sensitivity -- 0.8μg of (I) with a dilution of 1:50 000. This method can be used to analyze biological material, the sensitivity being 3 mg of (I) per 100 g of the biological material.

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USSR

UDC 340.67:615.285.7

IKRAMOV, L. T. and TASHPULATOV, A. Yu., Chair of Toxicological Chemistry, Tashkent Pharmaceutical Institute

"Chromatographic Purification of Methylmercaptophos in Investigations of Biological Material"

Moscow, Sudebno-Meditsinskaya Ekspertiza, Vol 13, No 4, Oct/Nov/Dec 70, pp 36-39

Abstract: A method is described for chromatographic separation of methylmercaptophos from various admixtures in biological material obtained with the use of chloroform. The method involves the use of paper and thin-layer chromatography. Preliminary tests were conducted to determine the most efficient organic solvent for elution. Ethyl alcohol, acetone, methyl alcohol, dichloroethane, chloroform, and carbon tetrachloride were tested, and ethyl alcohol was found to be most effective. A pure solution of methylmercaptophos in ethyl alcohol was used to determine the effectiveness of the chromatographic method in isolating methylmercaptophos from its admixtures. Positive results were obtained and confirmed by microcrystal tests with mercuric chloride, mercuric bromide,

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IKRAMOV, L. T. and TASHPULATOV, A. Yu., Sudebno-Meditsinskaya Ekspertiza, Vol 13, No 4, Oct/Nov/Dec'70, pp 36-39

iodone monochloride, and cholinesterase. On the basis of these results, chloroform extracts of the test material were evaporated in a water bath at a temperature not exceeding 50°C; the residue was dissolved in alcohol and filtered, and the filtrate was deposited on chromatographic paper or a membrane containing a layer of silica gel. The chromatographic paper or membrane was then examined under ultraviolet light. Spots on the chromaphotograms corresponding to the reference spot obtained in the tests with the pure solution of methylmercaptophos in alcohol were eluated and subjected to quantitative and qualitative analysis.

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1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--TESTS FOR THE DETECTION OF INCANINE DURING TOXICOLOGICAL ANALYSIS
-U-
AUTHOR--IKRAMOVA, M.V.

COUNTRY OF INFO--USSR

SOURCE--SUD. MED. EKSPERTIZA 1970. 13(1), 32-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--ALKALOID, TOXICITY, CHEMICAL IDENTIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/2001 STEP NO--UR/0525/70/013/001/0032/0035

CIRC ACCESSION NO--AP0137180

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137180

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INCANINE MAY CAUSE SERIOUS TOXIC EFFECTS. THE METHOD FOR ISOLATION OF INCANINE WITH ACID AND ITS IDENTIFICATION IN BIOL. MATERIAL HAVE BEEN DESCRIBED. INCANINE GAVE CHARACTERISTIC MICROCRYSTALS WITH PICRIC, AUROCHLOROHYDRIC, AND CHLOROPLATINOUS ACIDS AND WITH REINECKE'S SALT. FACILITY: TASHKENT. FARM. INST., TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC 669.71.472

TSYPLAKOV, A. M., SENIN, V. N., TIMCHENKO, B. I., IKRIN, G. YE., FROLOVA, E. B.

"Aluminum Electrolyzer with Consumable Pins"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 75-84 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G168)

Translation: An experimental electrolyzer with a current strength of 130 kiloamps with consumable pins manufactured from 128 x 7 m Cu tubes was tested. Replacement of the extractable steel pins by consumable copper pins permitted the mean voltage to be decreased by 286 millivolts as a result of which the yield of aluminum per kilowatt-hour was increased by 5.5 grams. The current efficiency was increased by 1.25%. Improvement of the anode quality by lowering the thermal load and absence of rearrangement of the pins led to a reduction in the consumption of the anode mass by 67 kilograms/ton of aluminum and a reduction in the removal of carbon-carrying froth by 43 kg/ton as a result of which the consumption of F salts was reduced by 24 kg/ton.

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USSR

TSYPLAKOV, A. N., et al., Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti, 1970, No 71, pp 75-84

The copper material balance indicating that 89% of the copper goes into the aluminum is presented. The nonrecoverable losses of copper are ~ 4%. There are 3 tables, 1 illustration and an 8-entry bibliography.

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USSR UDC 669.24'25-154:669.24'784-154:532.6:532.14

IKSANOV, B. A., MINAYEV, Yu. A., FATKULLIN, O. Kh., GRIGORYAN, V. A., Moscow Institute of Steel and Alloys

"Characteristics of Surface Solutions and Densities of Alloys in the Ni-Co and Ni-C Systems"

Moscow, IVUZ. Chernaya Metallurgiya, No 5, 1972, pp 12-14

Abstract: The paper presents experimental results of measurement of density and surface tension in the region of formation of solid solutions based on the intermetallic compound Ni_3Co. An analysis is made of observed anomalies in surface properties which agree with data on negative deviations in the behavior of volumetric solutions, and are qualitatively described by the thermodynamic theory of surface tension of A. A. Zhukovskiy. The quiescent drop method was used with forced formation on a cylindrical alundum substrate and indirect induction heating. The specimens and substrates were preannealed in a vacuum of $5 \cdot 10^{-5}$ mm Hg at 1300°C. Measurements were made in pure helium at temperatures of 1500-1650°C. The temperature dependence of surface tension shows flattening of the maximum with an increase in temperature above the liquidus line. It was found that the heat of adsorption

USSR

IKSANOV, B. A., et al., IVUZ. Chernaya Metallurgiya, No 5, 1972, pp 12-14

of cobalt increases over the entire range of concentrations. The results also confirm the previously observed weak surface activity of carbon. Adding carbon to nickel reduces the surface tension by 100 mJ per sq. m for every one percent of carbon added.

2/2

USSR

MUNAYEV, Yu. A., IKSANOV, B. A., MARMYNOV, S. E., FAMKULLIN, O. Kh.

"Wetting of Zirconium Nitride with Nickel-Cobalt Alloys"

Moscow, Izvestiya Vysshikh Uchevnykh Zavedeniy, Chernaya Metallurgiya, No 9, 1972, pp 13-15.

Abstract: Results are presented from an experimental study of the equilibrium contact wetting angles as a function of composition, dynamics of change of contact angles during wetting and spreading rate of liquid alloys over a solid coating. The specimens of zirconium nitride used in the study were produced by precipitation from the gas phase onto a substrate of MPG-6 graphite. The thickness of the coatings was 0.7-1.0 mm. The total content of impurities in the nitride coating was not over 0.01%. The test data showed that the wetting of zirconium nitride by a nickel-cobalt alloy occurs by the mechanism of formation of adsorption layers by surface diffusion. Enrichment of the alloys with nickel apparently causes formation of thick, thermodynamically stable adsorption layers, while enrichment with cobalt causes formation of unstable adsorption layers, so that the liquid metal collects into drops.

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USSR

UDC 536.581.001.2

IKSANOV, CH. N., and RAIMOV, N. Z.

"On Calculating the Temperature Distribution in the Thermal Chambers of Small Thermostats"

Kazan', Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), No 146, 1972, pp 95-99 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 2, 1973, Abstract No 2.32.950)

Translation: The authors discuss the question of the steady-state distribution of heat in the thermal chambers of small thermostats. Using several assumptions, they obtain a physical model in the form of two cylinders, in one of which there are surface-distributed discharges of heat at the end faces. On the basis of this model, they formulate partial differential equations with the appropriate boundary conditions, and use the Fourier method to solve the problem. They also produce an approximative formula that enables them to find the axial temperature distribution in the thermal chambers of a small thermostat. (1 illustration; 1 bibliog. ref.; abstract)

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USSR

UDC 612.766.1:656.13.071.7

VAYSMAN, A. I., LASHCHENKO, N. S., IKSANOV, M. SH., DOROFEYEVA, Ye. D., ROSTOVTSEVA, G. G., GOLOVA, I. A., CHANDAYEV, A. K., VOL'PER, G. I., and E. I. KOGAN

"Physiological Characteristics of the Work of Bus and Truck Drivers in a Large City"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 1, 1973, pp 13-16

Abstract: The results of various functional psychological and physiological tests (reflexes, reaction to a moving object, proof reading test, EKG, blood pressure, pulse, etc.) confirmed the conclusions drawn from questionnaires filled out by 8000 bus drivers that fatigue gradually sets in after 4 to 5 hours on the job and becomes pronounced after 7 to 8 hours of driving. Along with a deterioration in performance, many showed an "improvement" in some physiological indices at the end of the work shift (e.g., increase in number of correct reactions to a moving object, decrease in time of differential reactions). This "improvement" is regarded as the result of overstraining the compensatory mechanisms in order to preserve a level of activity sufficient to protect the life and health of the driver. The truck drivers, on the other hand, continued to function well even after 8 or 9 hours on the job because

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USSR

VAYSMAN, A. I., et al., Gigiyena Truda i Professional'nyye Zaholevaniya, No 1, 1973, pp 13-16

of the less strenuous nature of the work (less time spent in driving during the shift, fewer actions to control the vehicle per unit of time, and less emotional stress). Some suggestions are made for altering the work schedules of bus drivers to take into account the physiological factors uncovered in the study.

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UDC: 616-036.86-057+613.62):656.13

CAUSES OF PRIMARY DISABILITY OF DRIVERS

[Article by A.I. Vaysman, Candidate of Medical Sciences, M.Sh. [illegible], Laboratory of Hygiene, Physiology, and Occupational Psychology of Motor Vehicle Drivers (headed by A.I. Vaysman, Candidate of Medical Sciences), Gor'kiy Scientific Research Institute of Industrial Hygiene and Occupational Diseases; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 11, 1972, submitted 5 May 1972, pp 58-62]

The social, economic, and medical significance of disability is known to all. Of great practical interest are studies dealing with causes of disability in different occupational groups. They permit evaluation of the role of industrial factors in onset of disease leading to lasting disability in a given branch of the economy and working out concrete health-improving measures. However, there are only isolated reports on this subject (L.I. Vol'fson, 1970; Ye.G. Protsek, 1970, and others) in the Soviet literature.

In view of the fact that drivers of modern vehicles perform work involving several adverse factors, the principal ones being high nervous and emotional stress, hypodynamia, intensive noise, vibration, exposure to toxic substances including carcinogens, dust, and a far from optimum microclimate (A.I. Vaysman, 1970; A. Babayev and Yu. Khodzhibayev, 1972; L. Kil'shteyn et al., 19y0; A.I. Vaysman et al., 1971), our objective was to investigate the causes of primary disability in this occupational group.

We excerpted data pertaining to men whose profession (at the time disability was determined) was that of chauffeur, from the records of Medical Expert Commission for Determination of Disability (VTEK). We did not take into consideration women drivers because of their small number. Our sample was collected on the basis of examining all current and past disability records of 1963-1969 in all VTEK of Gor'kiy.

It was established that the index of primary disability per 1,000 drivers per year is 5.25. However, of considerable interest is not so much the overall index as changes therein as related to age and tenure (Table 1).

I KSANOV, M. Sh.

JPRS 57875
2 Jan 73

USSR UDC 621.372.81

SMORGONSKIY, V. Ya. and ILARIONOV, Yu. A.

"Method for Computing the Critical Frequencies in a Circular Waveguide With a Dielectric Sleeve"

Kiev, Izvestiya VUZ--Radioelektronika, vol. 14, No. 7, 1971, pp 736-742

Abstract: The purpose of this article is to make up for the deficiencies of investigations in a similar direction by earlier researchers. An approximate method is proposed for analyzing the critical conditions when the dielectric sleeve of the waveguide is of arbitrary thickness and its permeability varies within wide limits. By this method, the change in the mutual position of the critical frequencies of the higher type of waves observed for some range of values of a/b, where a is the radius of the inner section of the waveguide and b is the radius of the outer skin (thus (b - a) is the thickness of the dielectric sleeve) for a permeability greater than 5.17. The method given is particularly applicable to permeabilities greater than 5, and is accurate enough for engineering requirements to be followed without using a computer. Values for the permeability and the a/b ratio for which the critical frequencies of E_{01} and $(HE)_{21}$ are equal, are found.

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USSR

UDC: 681.3

CHECHETKIN, N. I., ILARIONOVA, R. M., TUDER, G. M.

"On a Method of Diagnosing an Arithmetic Device"

V sb. Konstruir. i vnedreniye novykh sredstv vychisl. tekhn. vyp. 2 (Design and Introduction of New Computer Technology Facilities. No 2), Kiev, 1970, pp 162-166 (from RZh-Kibernetika, No 9, Sep 71, Abstract No 9V556)

[No abstract]

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CATALYTIC FIXATION OF NITROGEN -U-

AUTHOR-(03)-VOLPIN, M.YE., ILATOVSKAYA, M.A., SHUR, V.B.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 333-41

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN, AMMONIA, TITANIUM CHLORIDE, ALUMINUM BROMIDE, CHEMICAL SYNTHESIS, CHEMICAL REACTION MECHANISM, CHEMICAL REDUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0091 STEP NO--UR/0195/70/011/002/0333/0341

CIRC ACCESSION NO--AP0132384
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132384

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N IS CATALYTICALLY REDUCED TO NH SUB3 IN THE PRESENCE OF TICL SUB4, AL, AND ALBR SUB3. BEST YIELD (10.7 MOLE NH SUB3 -L MOLE TICL SUB4) WAS OBTAINED AT 1:12:33 MOLE RATIO OF CATALYST MIXT. C SUB6 H SUB6 IS THE BEST SOLVENT FOR THIS REACTION BUT THE REACTION CAN TAKE PLACE WITH COMPARATIVELY SIMILAR YIELD OF NH SUB3 IN THE ABSENCE OF A SOLVENT, IN FUSED ALBR SUB3. AT 130DEGREES AND 100 ATM. N, 125 MOLES NH SUB3 WERE OBTAINED WITHIN 14-18 HR AT 1:300:1500 MOLE RATIO OF TICL SUB4 -LIALH SUB4 -ALBR SUB3. FOR CATALYTIC FIXATION OF N, ALBR SUB3 WHICH PARTICIPATES IN THE BREAKING OF TI-N BOND IS AS INDISPENSABLE AS TLCL SUB4 AND A REDUCING AGENT. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

Reaction Kinetics

USSR

UDC: 541.124-128

VOL'PIN, M.YE., ILATOVSKAYA, M.A., and SHUR, V.B., Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR

"Catalytic Fixation of Nitrogen"

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 333-341

Abstract: Compounds of transitional metals react with N_2, forming compounds of the nitride type that yield NH_3 on hydrolysis. While the transitional metal compounds are effective in activating N_2, fixation of N_2 by them is not a catalytic process, because regeneration of the compound bringing about the fixation of N_2 does not take place by reason of the strong bond formed between N and the metal. Regeneration does take place when a reducing agent and an aprotonic acid are present. Thus, catalytic fixation of N_2 could be carried out by employing the system $TiCl_4$ + Al + $AlBr_3$ in the presence of benzene; by using this mixture, the yield of NH_3 could be increased to 200-300 moles per mole $TiCl_4$ upon increasing continuously the content of $AlBr_3$ in the mixture at a constant amount of $TiCl_4$ and Al. The reaction could also be carried out in the absence of benzene in molten $AlBr_3$. Chlorides of transitional metals other than Ti ($ZrCl_4$, $CrCl_3$, $MoCl_5$, WCl_3, $FeCl_3$, etc) were ineffective as catalysts of N_2 fixation in a reaction of this type. Other systems that brought about catalytic fixation of N_2 were Al:$AlBr_3$: C_6H_6.$TiCl_2$.$2AlCl_3$, $TiCl_4$:$LiAlH_4$:$AlBr_3$, and $Ti(OBu)_4$ + iso-Bu_3Al + $AlBr_3$ in the presence of H_2/

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USSR

UDC 669.713.1

SAFONOV, V. N., LIMANSKIY, V. A., KLYUSHKIN, V. P., LEVKOV, YE. G., BULGAKOVA, N. G., IL'INSKAYA, G. I., BORISENKO, N. A., and LEVKOVA, A. S.

"Physical Properties and Chemical Composition of Dust Formed During the Production of Aluminum and Silumin"

Tsvetnye Metally, No 4, Apr 71, pp 43-44

Abstract: Since the physical and chemical composition of a dust dictates the basic characteristics of the dust-collecting apparatus needed, a study was made of these characteristics of dusts collected during the production of electrolytic aluminum and silumin. Two methods of determining dispersibility were studied -- using triple cyclones and using impactors. The latter were found to give the most reliable results. The specific electric resistance for the dusts was measured and found to be $4 \times 10^7 - 4 \times 10^8$ ohms. cm for electrolytic aluminum and $5 \times 10^9 - 2 \times 10^{10}$ ohms.cm for silumin dust at the dew point of the gas in the temperature range of 20 to 40°C. At 100°C both forms of dust have a specific electrical resistance of less than $10^9 - 10^{10}$ ohms.cm. Other characteristics determined were density, bulk density, angle of rest, porosity, and moisture. The electrolytic aluminum dust was analyzed for total fluorine, Al_2O_3, Na_2O, Fe_2O_3, SiO_2, CaO, MgO, resin, SO_4^{-2}, and calcination loss. 1/1